

ABSTRACT OF THE DISCLOSURE

[00125] Manufacturable processes and the resultant structures utilize metal hydride as an internal source of hydrogen to enhance heat removal within semiconductor packages that employ low dielectric constant materials. The use of a metal hydride heated by internal or external sources facilitates pressurizing hydrogen gas or hydrogen-helium gas mixtures within a hermetically-sealed package. The configuration of the metal hydride can include, where needed to generate the pressure required in larger packages, a relatively large area of metal hydride material on at least one or a plurality of hydrogen generation-dedicated chips. Alternatively, the configuration can include at least one or a plurality of relatively small "islands" of metal hydride material on each of at least one or a plurality of integrated circuit-bearing chips.